



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,305	07/18/2003	Yukiko Nakaoka	740819-1020	2520

22204 7590 03/15/2004

NIXON PEABODY, LLP
401 9TH STREET, NW
SUITE 900
WASHINGTON, DC 20004-2128

EXAMINER

GEYER, SCOTT B

ART UNIT	PAPER NUMBER
----------	--------------

2829

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,305

Applicant(s)

NAKAOKA ET AL.

Examiner

Scott B. Geyer

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/062,535.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0703.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10/062,535, filed on 2-5-2002.

Information Disclosure Statement

2. The references cited within the IDS, received on July 18, 2003, have been considered.

Drawings

3. The drawings received on July 18, 2003 are acceptable.

Specification

4. The specification received on July 18, 2003 is acceptable.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the limitation "said bonding wire" in claim 1 on line 17. There is insufficient antecedent basis for this limitation in the claim. Claims 2 and 3 are also rejected since they are dependent upon claim 1 and thus contain all of the limitations of claim 1.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujimoto et al. (5,930,599).

8A. As to **claim 1**, Fujimoto et al. teach a method of manufacturing a two-chip structure as depicted by figures 1A-2C. Fujimoto et al. teach in figure 1A a step of attaching second chips 20 to first chips 10 which are integrated in a wafer form. The second chips are arranged and attached such that electrodes 22 of the second chips match up with electrodes 11 with the first chips. After the second chips are attached, they are polished as seen in figure 2A by a rotating diamond wheel 43. The thickness of the second chips 20 are thinner than the thickness of the first chips 10 as can be clearly seen in figure 2B. The wafer is separated into individual discrete stacked units as seen by figures 2B-2C. As clearly seen in figure 2C, Fujimoto et al. teach the area of the first chips main surface being greater than the area of the second chips main surface; Fujimoto et al. teach a third electrode 12 outside a region of the first main surface opposed to the second main surface; Fujimoto et al. teach the surface of the first chip opposite the main surface being adhered to a die pad 31; Fujimoto et al. teach leads 32 provide adjacent the die pad 31; Fujimoto et al. teach electrically connecting the leads 32 to the third electrode 12 through bonding wires 33; Fujimoto et al. teach

encapsulating the first chip 10, the second chip 20 and bonding wire 33 encapsulated by resin 35. Fujimoto et al. also teach a distance between the first main surface of the first chip and the surface of the second chip opposite the first main surface to be smaller than the distance between the first main surface of the first chip and the highest position of the bonding wire as seen in figure 2C.

8B. As to **claim 2**, Fujimoto et al. teach forming a resin layer 30 between the first and second chip as seen in figure 1A.

8C. As to **claim 3**, Fujimoto et al. teach a thinning the second chip to a thickness that is $\frac{1}{2}$ the thickness of the wafer or less, as can be clearly seen in figure 2B (see also column 8, lines 50 et seq.).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott B. Geyer whose telephone number is (571) 272-1958. The examiner can normally be reached on weekdays, between 10:00am - 6:30pm. E-mail: scott.geyer@uspto.gov

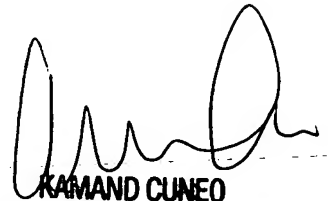
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2829

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WBD 3/3/04

SBG
March 3, 2004



RAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800